

AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

Claims 1-72 (Canceled)

73. (New) Apparatus for conducting electrophoresis therein, the apparatus comprising:
- a body of separating gel;
 - a cathode electrically coupled to a first end of said body of separating gel; and
 - an anode comprising an electrochemically ionizable metal, said anode is disposed in a semi-solid ion reservoir containing a buffer, said semi-solid ion reservoir is disposed at a second end of said body of separating gel and is electrically coupled to said body of separating gel, said semi-solid ion reservoir and said buffer are configured for retarding the migration of ions of said electrochemically ionizable metal into said body separating gel, during said electrophoresis.
74. (New) The apparatus according to claim 73 wherein said cathode, said anode, said body of separating gel and said semi-solid ion reservoir are disposed within a substantially closed cassette.
75. (New) The apparatus according to claim 73 wherein said electrochemically ionizable metal of said anode is copper.
76. (New) The apparatus according to claim 73 wherein said cathode comprises a metal selected from copper and aluminum.
77. (New) The apparatus according to claim 73 wherein said buffer comprises an amine and a Zwitter ion.
78. (New) The apparatus according to claim 77 wherein the pK of said amine is lower than that of said Zwitter ion by 0.9-2 pH units.
79. (New) The apparatus according to claim 77 wherein said buffer is selected from,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N-tris[hydroxymethyl]methylglycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N,N-bis[2-hydroxyethyl]glycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and Glycylglycine,

a combination of Tris and Glycine, and

a combination of amino methyl propanol and proline.

80. (New) The apparatus according to claim 73 wherein said body of gel is selected from a polyacrylamide based gel and an agarose based gel.

81. (New) The apparatus according to claim 73 wherein the migration of ions during said electrophoresis does not exceed the limits of said semi-solid ion reservoir.

82. (New) The apparatus according to claim 73 wherein said body of separating gel comprises at least one sample well.

83. (New) A method for constructing apparatus for conducting electrophoresis therein, the method comprising:

providing a body of separating gel;

providing a cathode electrically coupled to a first end of said body of separating gel;

and

providing an anode comprising an electrochemically ionizable metal, said anode is disposed in a semi-solid ion reservoir containing a buffer, said semi-solid ion reservoir is disposed at a second end of said body of separating gel and is electrically coupled to said body of separating gel, said semi-solid ion reservoir and said buffer are formulated for retarding the migration of ions of said electrochemically ionizable metal into said body separating gel, during said electrophoresis.

84. (New) The method according to claim 83 and wherein said anode, said cathode said body of separating gel and said semi-solid ion reservoir are disposed within a substantially closed cassette.

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85. (New) The method according to claim 83 wherein said electrochemically ionizable metal of said anode is copper.

86. (New) The method according to claim 83 wherein said cathode comprises a metal selected from copper and aluminum.

87. (New) The method according to claim 83 wherein said buffer comprises an amine and a Zwitter ion.

88. (New) The method according to claim 87 wherein the pK of said amine is lower than that of said Zwitter ion by 0.9-2 pH units.

89. (New) The method according to claim 87 wherein said wherein said buffer is selected from,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and

N-tris[hydroxymethyl]methylglycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and

N,N-bis[2-hydroxyethyl]glycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and Glycylglycine,

a combination of Tris and Glycine, and

a combination of amino methyl propanol and proline.

90. (New) The method according to claim 83 wherein said body of gel is selected from a polyacrylamide based gel and an agarose based gel.

91. (New) The method according to claim 83 wherein the migration of ions during said electrophoresis does not exceed the limits of said semi-solid ion reservoir.

92. (New) The method according to claim 83 wherein said body of separating gel comprises at least one sample well.